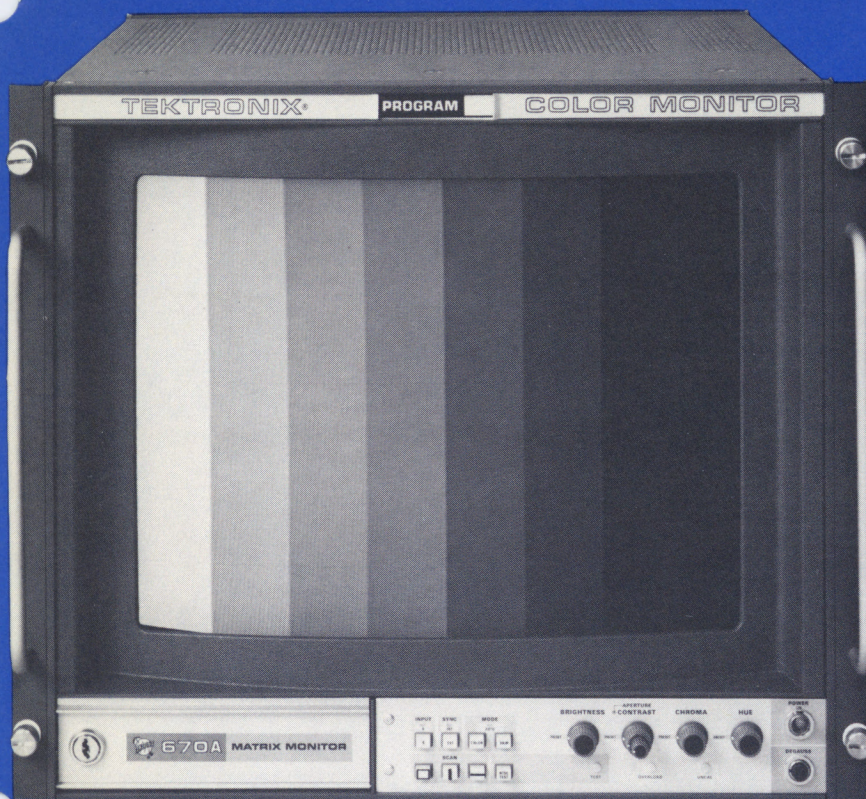


NEW
670A SERIES
COLOR
PICTURE
MONITORS

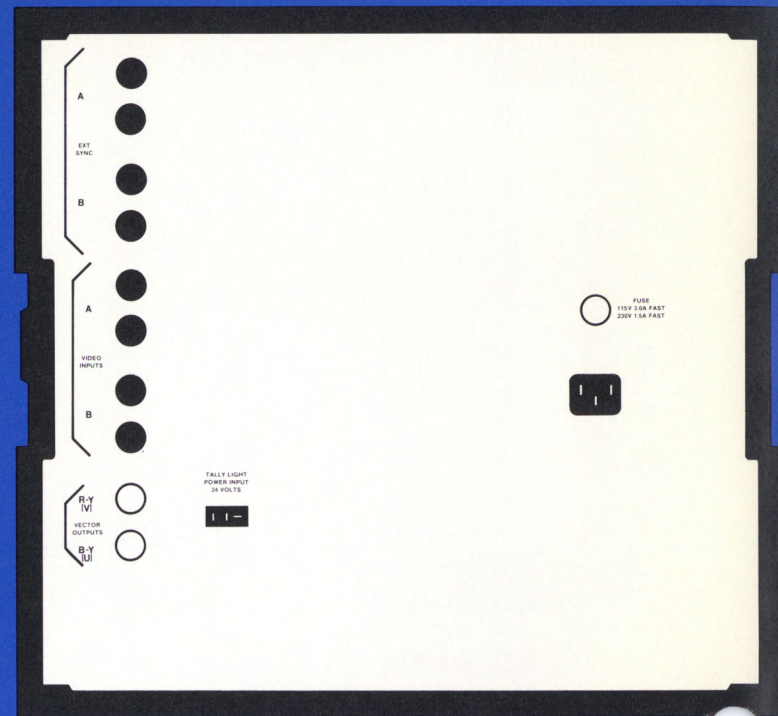


LOW PRICE \$2690

Operational controls—The new variable aperture control is concentric with the contrast control.



670A and 671A rear panel.



LOW PRICE—\$2690

Variable aperture correction

NTSC, PAL or NTSC + RGB Versions

Precise color tracking over full signal range

Such precise phasing (hue) that it can be used for adjusting system encoding quadrature

Expanded V in pulse cross and V delay modes

Retrace so rapid that the entire active picture area can be displayed

Two switchable inputs isolated from ground for hum rejection

External sync switching capability

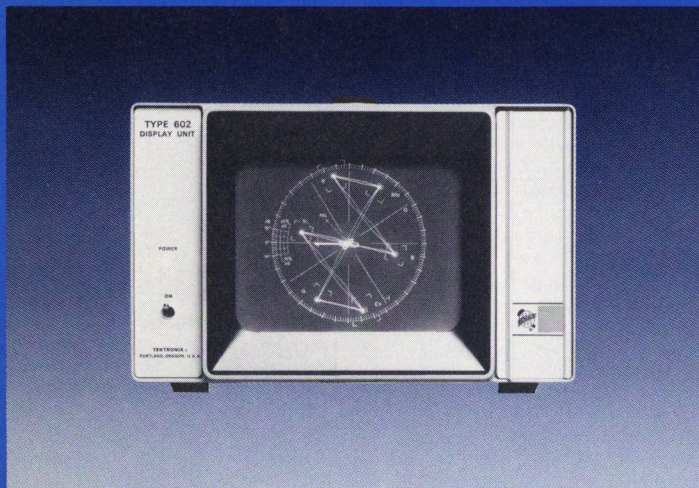
Such precise decoding that R-Y, B-Y outputs are optional for use in vector display on oscilloscopes

The 670A Series is designed for use in exacting applications where picture quality is particularly important. Designed for stability and simplicity of convergence, this monitor produces a sharp, geometrically-accurate picture with consistent color over a period of time. The 17-inch Trinitron Kinescope used is free from many of the moire problems of other designs.

Picture sharpness in the 670A Series is enhanced by variable aperture correction. You can choose the amount of correction desired with a continuously-variable front-panel control that also has two detented positions for a choice of preset corrections. One preset correction results in a unity ratio of 2T Pulse to Bar luminance response as measured with an oscilloscope. The other is factory set to produce a 2T pulse that is 20% higher than bar amplitude but is easily adjustable to your standard.

Circuits in the 670A Series are designed for color stability and consistency. Decoding is so precise that the R-Y and B-Y voltages can be used to drive an X, Y monitor to produce a vector display (Option 2). The regulated EHT supply is not affected by extreme changes in APL even when calibrated brightness, at peak white, is set at 30 foot-Lamberts. Raster size is held within 1% while excellent clamping maintains black level with a 0 to 100 percent range of APL.

Retrace in Tektronix color monitors is rapid, less than ten microseconds, allowing you to see the entire picture in the underscan mode. A unique, expanded vertical-delay mode can be used to examine each line in the vertical interval. When used in conjunction with horizontal delay, a pulse-cross display results.



Precise decoding allows 670A Series Monitors with Option 2 to provide vector displays on an X-Y oscilloscope such as the TEKTRONIX 602 Option 5.

The 670A Series can be used in rack installations or separately in its own cabinet. It is compact, requiring only 15.75 inches vertically. Versions are available for NTSC (the 670A), and PAL systems (the 671A). RGB inputs are available with the NTSC version and should be ordered as 670A-1.

All signal connections to the picture monitor are made through BNC coaxial connectors located on the sloping rear panel of the instrument. Two connectors for each input provide compensated loop-through connections so that the instrument may be connected into any part of a 75-ohm system.

Two external composite sync inputs are provided with the capability of automatically

switching between two external sync signal sources as the video input is switched, or for obtaining sync for both video inputs from one sync source as desired.

All inputs are isolated from each other and the chassis.

The MODE switch controls whether or not the chrominance channel is activated. In the AUTO mode, the chrominance channel is activated by the presence of burst. In the COLOR mode, the chrominance channel is activated whether burst is present or not; in MONOCHROME mode, the channel is deactivated despite the presence of burst.

Two inputs are provided for encoded video signals. Each input can be isolated from the chassis to prevent ground current-induced hum. Each input is also isolated from all others. Hum is at least 50 dB down for common-mode mains hum up to 4 V rms. This eliminates the need for hum bucking transformers.

CHARACTERISTICS

INPUT SIGNAL LEVEL—0.5 V p-p minimum composite video; 2 V p-p maximum.

IMPEDANCE—Unterminated: High Z bridging inputs loop-through compensated for 75 ohms (not internally terminated). Return Loss: at least 46 dB to 5 MHz, power on or off, input in use or not.

MAXIMUM SAFE INPUT—Exceeds CCIR Recommendation 451-2 (± 5 V peak).

HUM REJECTION—Hum is at least 50 dB down when 4 V maximum rms mains hum signal is applied to the monitor in floating ground mode.

LUMINANCE CHANNEL—Dc Restoration: back porch type; not affected by burst. Mains hum reduction due to dc restorer is less than 6 dB. Amplitude Linearity: within 2%.

CHROMINANCE CHANNEL—Demodulation Axis: R-Y, B-Y. Bandpass: 0.6 MHz equiband. Gain Range: preset at 0 dB; adjustable from -6 dB to +10 dB.

RESIDUAL SUBCARRIER DETECTION (on applied signal)—Color of displayed picture will shift due to any residual subcarrier. This feature can be inhibited by a jumper on the decoder board.

CHROMINANCE-LUMINANCE Time Error: less than 30 nanoseconds. Gain Error: less than 3%.

DELAY—Red to green to blue is less than 30 nanoseconds.

SUBCARRIER REGENERATION

Phase Error: within 1° with input burst variation of ± 10 Hz from sub-carrier nominal burst level. With Temperature Variation: within 5° with ambient temperature variation from 0°C to 50°C ; within 1° for any 10°C increment within the range 0°C to 50°C . With Input Signal Variation: within 1° with input signal variations of ± 2 dB from 1.0 V. Within 3° with variation of burst/sync ratio of -6 dB to +10 dB. Breezeway Stability: 0.2° or less for burst timing errors including burst width variance (8-11 cycles), and breezeway variance $\pm 0.28 \mu\text{s}$. Phase Error Due to Noise: within 1° with rms white noise at -24 dB (0 dB = 700 mV rms).

PICTURE

HEIGHT—10.1 inches or 256 mm.

WIDTH—13.5 inches or 342 mm.

UNDERSCAN—Approximately 10% reduction in both height and width.

ASPECT RATIO—3:4.

DEFLECTION LINEARITY—(Vertical and Horizontal): $\pm 1\%$ of picture height within a central area bounded by a circle whose diameter equals picture height, $\pm 2\%$ of picture height outside of central area.

CONVERGENCE ERROR—Less than 1 mm within the central area. Outside of the central area, color separation (misconvergence) is less than 2 mm.

UNBLANKING—All active picture elements are displayed. (Horizontal retrace is accomplished within 10 μs .)

COLOR TEMPERATURE—6500°K. Easily adjustable to other standards.

CALIBRATED CONTRAST—30 footlamberts at peak white of standard 1 V signal.

CALIBRATED BRIGHTNESS—Displayed black may be preset to a level appropriate for ambient conditions.

EHT (Extremely High Tension)—24 kV nominal, regulated. Load variations cause less than 1% picture size variation. Monitor conforms to Department of Health, Education and Welfare regulations 21 CFR Part 278, Subpart C, applicable on date of manufacture.

KINESCOPE PROTECTION—Failure of horizontal or vertical scanning shuts off the EHT. Failure of H.V. Regulator circuit does not cause EHT to soar excessively. EHT supply is current limited.

HEATER VOLTAGE—Regulated dc.

SYNC AND TIMING

SIGNAL RANGE—Composite sync 0.5 V p-p to 8 V p-p or composite video 0.5 V p-p to 2 V p-p.

IMPEDANCE—Unterminated: High Z bridging inputs loop-through compensated for 75 ohms (not internally terminated). Terminated: 75 ohms. Return Loss: at least 46 dB to 5 MHz with respect to 75 ohms.

SYNCHRONIZATION—Stable sub-carrier regeneration, limited by line sync performance. Line sync white noise immunity is -20 dB. Field sync white noise immunity is -20 dB. Field sync stable with tilt equal

to 100% of sync amplitude in vertical blanking. Stable with 20 IRE mains hum.

AFC (Two-loop AFC type)—Phase Corrector: corrects for phase errors due to side pincushion correction and other effects within the monitor. Slow AFC: displays timing errors of incoming sync; particularly, 60 Hz or 240 Hz timing errors. Bandwidth is approximately 25 Hz. Fast AFC: largely corrects for incoming sync errors, approximately 2 kHz bandwidth.

SCAN DELAY—Horizontal Delay: approximately 1/4 line; displays burst. Vertical Delay: displays the vertical blanking interval of the input signal expanded approximately 2.5 times unless underscan is activated. If the underscan button is depressed, vertical expand is inhibited.

POWER SUPPLY

MAINS VOLTAGE RANGE—115 V: within 10% (104 V ac to 126 V ac). 230 V: within 10% (207 V ac to 253 V ac).

CREST FACTOR—At least 1.3.

MAINS CURRENT—2.5 A rms maximum at 115 V, 60 Hz. 1 A maximum at 230 V, 50 Hz. Current is substantially higher during degaussing.

DEGAUSSING SURGE CURRENT—5 A rms.

POWER CONSUMPTION—230 W maximum, 185 W typical.

MAINS FREQUENCY—48 Hz to 66 Hz.

ORDERING INFORMATION

When ordering please use the exact nomenclature as given here.

670A NTSC \$2690

670A-1 NTSC + RGB \$3200

671A PAL \$2790

For Vector Display Options on 670A Series Monitors
Order Option 2... Add \$145

602 Option 5 (X-Y Monitor) \$1175

604 Option 5 (X-Y Monitor) \$955

DIMENSIONS AND WEIGHTS

CABINET VERSION—Height: 16 inches including mounting feet (40.6 cm). Width: 17.45 inches (44.32 cm). Length: 20.75 inches (52.7 cm).

RACKMOUNT VERSION—Height: 15.72 inches (39.9 cm). Width: 19 inches (48.26 cm). Length: 21.725 inches including handles (55.18 cm).

WEIGHTS (approximate)—Net Weight: 89 lbs (40.4 kg). Domestic Shipping Weight: 107 lbs (48.5 kg). Export-Packed Weight: 132 lbs (59.9 kg).

ENVIRONMENTAL

TEMPERATURE—Nonoperating: -40°C to +65°C. Operating range: 0°C to $+50^\circ\text{C}$.

ALTITUDE—Nonoperating: to 50,000 feet. Operating range: to 15,000 feet.

VIBRATION—To 0.015 inch p-p displacement at 50 Hz.

SHOCK—To 30 g's, 1/2 sine, 11 ms duration.

INCLUDED ACCESSORIES

Cable assy, pwr: 3 wire, 98 inches long (161-0066-00); Slide guide: pair (351-0395-00); Label set: tally indent (334-1935-00); 4 Foot: plastic (348-0080-01); 4 Screw, maching: 6-32 x 0.312 inch 100 deg. flh stl (211-0538-00); Removal tool: anode (003-0728-00); Manual, tech: service (070-1445-00).

All 670A Monitors are shipped with rackmounting hardware. Cabinet version hardware is also included.

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